

METHODS FOR XENOTOPIC EXPRESSION OF NUCLEUS-ENCODED  
PLANT AND PROTIST PEPTIDES AND USES THEREOF

ABSTRACT OF THE DISCLOSURE

[00106] The present invention provides a method for introducing a functional peptide  
5 encoded by a plant or protist nucleic acid sequence into a mitochondrion of a mammalian  
cell, and a pharmaceutical composition comprising the nucleic acid sequence. The present  
invention also provides a method for correcting a phenotypic deficiency in a mammal  
resulting from a mutation in a mitochondrial peptide. Additionally, the present invention is  
directed to a method for treating a mitochondrial disorder in a subject in need of treatment  
10 therefor. The present invention further provides expression vectors for use in introducing a  
functional peptide encoded by a plant or protist (including algal) nucleic acid sequence into a  
mitochondrion of a mammal, as well as mammalian cells transformed by the expression  
vectors. Also provided are clonal cell strains comprising the transformed mammalian cells.  
Finally, the present invention is directed to a method for introducing a functional peptide into  
15 a mitochondrion.